GLOSSARY

absorbed dose	When ionizing radiation passes through a material, some of its energy is imparted to the material. The amount of energy retained per unit mass of the material is called the absorbed dose and is measured in rads. Rads are usually converted to dose units of rem when referring to the absorbed dose in humans. This conversion considers the different impacts that various forms of ionizing radiation produce in the human body. Consequently absorbed doses expressed in rad and equivalent rem may not be numerically equal.
activation	The process of making a material radioactive by exposing the material to neutrons, protons, or other nuclear particles. In this EIS, a large percentage of the radioactivity present in defueled nuclear reactor plants was formed by activating the metal structures in the reactor compartment with neutrons during normal reactor plant operations. Activation is also referred to as radioactivation.
adsorption	Taking up of molecules by physical or chemical forces by the surfaces of solids or liquids with which they are in contact.
beta particle	[Symbol β (beta)] A charged particle emitted by certain radioactive materials. It has a unit electrical charge and a mass which is equal to 1/1837 of a proton. A negatively charged beta particle is identical to an electron and is the more common form of beta activity. A positively charged beta particle is called a positron and is less common. Exposure to large levels of beta particles may cause skin burns, and materials that emit beta particles are harmful if they enter the body. Most beta particles are stopped by a few millimeters of lead or steel.
curie	[Abbreviation Ci] A unit of radioactivity. One curie of radioactivity in a material results in 37 billion (3.7×10^{10}) nuclear disintegrations per second. This unit does not give any indication of the radiological hazard associated with the disintegration.
decommissioning	Actions to remove a Naval vessel from active service.
dose	A general term which denotes the quantity of radiation or energy absorbed; usually expressed in rem for doses to man.
dose commitment	The total radiation dose accrued by an individual over a specified period of time due to the exposure of the individual to radiation during a given interval of time. This includes the total time the radioactive material would reside in the body, if ingested or inhaled. Dose commitments are usually expressed in rem.

GLOSSARY (Continued)

gamma ray	[Symbol γ (gamma)] High-energy, short wavelength electromagnetic radiation. Gamma radiation frequently accompanies beta particle emissions. Gamma rays are very penetrating and are stopped most effectively by dense materials such as lead or uranium. They are essentially similar to x-rays but are usually more energetic and originate from the nucleus. Cobalt-60 is an example of a radionuclide that emits gamma rays.
inactivation	The process by which a nuclear-powered ship is prepared for decommissioning and for eventual disposition of the ship. Thus term is often used interchangeable with deactivation.
half-life	The time required for half of the atoms of a radioactive material to decay to another nuclear form.
inner bremsstrahlung	Electromagnetic radiation produced by the sudden retardation of an electrical particle (electron or positron) in the intense electrical field of the atomic nucleus.
ionizing radiation	Any radiation which displaces electrons from atoms or molecules, thereby producing ions. Examples include alpha, beta, and gamma radiation. Exposure to ionizing radiation may produce skin or tissue damage.
latent cancer fatality	The increased number of fatal cancers is based on the calculated increase in exposure to radiation that would be seen by the general public. The average annual dose received by a member of the population of the United States from background radiation is approximately 300 millirem. When people are exposed to additional radiation, the number of radiation induced cancer and other health effects increase. In a typical group of 10,000 persons who do not work with radioactive material, a total of about 2,000 (20 percent) will normally die of cancer. If each of the 10,000 persons received an additional 1 rem of radiation exposure (10,000 person-rem) in their lifetime, then an estimated 5 additional cancer deaths (0.05 percent) might occur. Therefore, the likelihood of a person contracting fatal cancer during their lifetime could be increased nominally from 20 percent to 20.05 percent by receiving a dose of 1 additional rem of radiation. The factor used in this EIS to obtain fatal cancers is 0.0004 fatal cancers per person-rem for workers and 0.0005 fatal cancers per person-rem for the general public.
radioactivity	The process of spontaneous decay or disintegration of an unstable nucleus of an atom; usually accompanied by the emission of ionizing radiation.
rem	An acronym for roentgen equivalent man. A special unit for measuring dose equivalents. A rem gives the same biological effects as one roentgen of x-rays gamma or beta radiation.

seiche	A wave caused by seismic or atmospheric disturbances which oscillates in enclosed bodies of water. Oscillations occur from a few minutes to a few hours.
x-rays	Penetrating electromagnetic radiation with wavelength shorter than visible light. They are usually produced (as in medical diagnostic x-ray machines) by irradiating a metallic target with large numbers of high-energy electrons. In nuclear reactions, it is customary to refer to photons originating outside the nucleus as x-rays and those originating in the nucleus as gamma rays.